CLAIMS

1. (Currently amended) A method for the manufacture of a printed electric circuit having at least one electronic component selected from the group consisting of conductor, resistor, capacitor and inductor, the method comprising:

(a) ink jet printing on a substrate having at least one layer, and wherein the substrate is glass, at least one patterned layer of an ink jet printable composition comprising:

(1) functional material wherein the functional material comprises one or more substances selected from the group consisting of elements, compounds and mixtures ~~of~~ thereof having electrical properties,

(2) organic polymer comprising polyvinylpyrrolidone; dispersed in

(3) dispersion vehicle selected from organic solvent, water, or mixtures thereof;

and wherein the viscosity of said composition is between 5 mPa.s to 50 mPa.s at a temperature of 25°C to 35°C,

(b) firing said substrate and ink composition of (~~b~~a).

2. (Cancelled)

3. (NEW) The method of Claim 1 wherein the viscosity is less than 20 mPas.s at room temperature.

4. (NEW) The composition of Claim 1 having a stability of up to 24 hours.

5. (NEW) The method of Claim 1 wherein the functional materials are selected from the group of conductive functional materials consisting of: gold, silver, copper, nickel, aluminum, platinum, palladium, molybdenum, tungsten, tantalum, tin, indium, lanthanum, gadolinium, ruthenium, cobalt, titanium, yttrium, europium, gallium, zinc, magnesium, barium, cerium, strontium, lead, antimony, and mixtures thereof.

6. (NEW) The method of Claim 1 wherein the functional materials are selected from the dielectric functional materials selected from Barium Titanate and Titanium Dioxide, Pd/Ag and RuO_2.

7. (NEW) The method of claim 1 wherein the surface of the substrate is treated to change surface tension.

8. (NEW) The method of claim 7 wherein the treated substrate has a surface tension range between 15 dyn/cm - 100 dyn/cm.

9. (NEW) The method of claim 7 wherein the surface of the substrate is treated with surfactants.

10. (NEW) The method of claim 1 wherein the ink jet printable composition further comprises UV-curable or thermally curable compounds.

11. (NEW) The method of claim 10 wherein, after the ink jet printable composition leaves an ink jet printer nozzle during ink jet printing, the ink drops are exposed to UV-light

12. (NEW) The method of claim 10 wherein the concentration of the UV-curable compounds is 1-10wt%, based on the total weight of the functional material.

13. (NEW) The method of claim 1 wherein the functional material has a particle size diameter of 0.1 microns - 1.2 microns.

14. (NEW) The method of claim 13 wherein the functional material has a particle size diameter of 0.8 microns - 1.2 microns.

15. (NEW) The method of claim 1 wherein the functional material has a particle size of 0.3 microns - 0.8 microns.

16. (NEW) The method of claim 5 wherein the functional material is silver.

17. (NEW) The method of claim 1 wherein lines are patterned, and wherein the lines, upon firing, have a width of 100 microns - 165 microns.

18. (NEW) The method of claim 1 wherein the fired lines of the electric circuit have a thickness of 1.8 microns - 2.0 microns.

19. (NEW) The method of claim 1 wherein the resistivity of the fired line of the electric circuit is 11.5 mohm/square at 5 micron thickness.

20. (NEW) A method for the manufacture of a printed electric circuit having at least one electronic component selected from the group consisting of conductor, resistor, capacitor and inductor, the method comprising:

(a) ink jet printing on a substrate having at least one layer, and wherein the surface of the substrate is treated, at least one patterned layer of an ink jet printable composition comprising:

(1) functional material wherein the functional material comprises one or more substances selected from the group

consisting of elements, compounds and mixtures thereof having electrical properties,

(4) organic polymer comprising polyvinylpyrrolidone; dispersed in

(5) dispersion vehicle selected from organic solvent, water, or mixtures thereof;

and wherein the viscosity of said composition is between 5 mPa.s to 50 mPa.s at a temperature of 25°C to 35°C,

(b) firing said substrate and ink composition of (a).

21. (NEW) The method of Claim 20 wherein the viscosity is less than 20 mPas.s at room temperature.

21. (NEW) The composition of Claim 20 having a stability of up to 24 hours.

22. (NEW) The method of Claim 20 wherein the functional materials are selected from the group of conductive functional materials consisting of: gold, silver, copper, nickel, aluminum, platinum, palladium, molybdenum, tungsten, tantalum, tin, indium, lanthanum, gadolinium, ruthenium, cobalt, titanium, yttrium, europium, gallium, zinc, magnesium, barium, cerium, strontium, lead, antimony, and mixtures thereof.

23. (NEW) The method of Claim 20 wherein the functional materials are selected from the dielectric functional materials selected from Barium Titanate and Titanium Dioxide, Pd/Ag and RuO_2.

24. (NEW) The method of claim 20 wherein the treatment of the surface of the substrate results in a change of surface tension.

25. (NEW) The method of claim 20 wherein the substrate is glass, ceramic, or plastic.

26. (NEW) The method of claim 24 wherein the treated substrate has a surface tension range between 15 dyn/cm - 100 dyn/cm.

27. (NEW) The method of claim 24 wherein the surface of the substrate is treated with surfactants.

28. (NEW) The method of claim 20 wherein the ink jet printable composition further comprises UV-curable or thermally curable compounds.

29. (NEW) The method of claim 28 wherein, after the ink jet printable composition leaves an ink jet printer nozzle during ink jet printing, the ink drops are exposed to UV-light

30. (NEW) The method of claim 28 wherein the concentration of the UV-curable compounds is 1-10wt%, based on the total weight of the functional material.

31. (NEW) The method of claim 20 wherein the functional material has a particle size diameter of 0.1 - 1.2 microns.

32. (NEW) The method of claim 20 wherein the functional material has a particle size diameter of 0.8 - 1.2 microns.

33. (NEW) The method of claim 20 wherein the functional material has a particle size of 0.3 - 0.8 microns.

34. (NEW) The method of claim 22 wherein the functional material is silver.

35. (NEW) The method of claim 20 wherein lines are patterned, and wherein the lines, upon firing, have a width of 100-165 microns.

36. (NEW) The method of claim 20 wherein the fired lines of the electric circuit have a thickness of 1.8-2.0 microns.

37. (NEW) The method of claim 20 wherein the resistivity of the fired line of the electric circuit is 11.5 mohm/square at 5 micron thickness.